AFRICAN POPULATION AND HEALTH RESEARCH CENTER: EDUCATION RESEARCH PROGRAMME: LEARNER MATHEMATICS ASSESSMENT TOOL

THIS ASSESSMENT TOOL SHOULD BE ADMINISTERED TO STD SIX PUPILS IN THE SCHOOL VISITED

In the process of developing this study tool, several sources were consulted and mainly included the Human Sciences and Research council (HSRC) and the South Africa Consortium for Monitoring and Evaluating Educational Quality II – Kenya (SACMEQ II).

GENERAL INSTRUCTIONS TO THE STUDENT

- Read these instructions carefully.
- It is important that you answer each question carefully and as accurately as possible.
- **Respond to the questions by simply circling your answer among the choices provided**.
- Please return the completed questionnaire to the research assistant. All information in this questionnaire will be treated confidentially.
- Thank you very much for the time and effort you have put into responding to this questionnaire.

<u>**INTRODUCTION AND CONSENT**</u>

Good morning/afternoon/evening sir/madam. My name is (NAME OF FIELD INTERVIEWER). I work with the African Population and Health Research Center (APHRC) which carries out research on Health, Urbanization, Well being and Education. Once in a while, we visit different towns/villages around Kenya to collect data on education. We are visiting six towns including Nairobi, Nakuru, Kisumu, Eldoret, Nyeri and Mombasa. This time round, we would like to collect schooling data for children aged between 5 and 20 years. We would also like to collect data on parental/Guardian participation on their child(ren) schooling. The results of this research will be made public and disseminated in the community and at national level involving the Ministry of Education (MoE) and other stakeholders in order to inform policy process. It is important to share the results with the government since it is the one through the MoE that formulates and implements educational policies. The responses you give will be held with utmost confidentiality and will only be available to members of the research team. Your responses will not cause any disadvantage to you. If you accept to participate in this research, you will be doing so professionally and voluntarily and there will not be any monetary returns. You are also free to refuse to respond to questions you do not feel comfortable answering. This interview will take about 25 minutes.

1.0 Would you like to participate in this research?   1=YES; 2=NO

1.0A. Kindly let me know the reason why you would not wish to participate in this research?

    1=Too busy/Do not have time; 2=Tired of research; 3=Research not beneficial; 4=Not   interested; 5=Other (specify)……………………………

    [CHECK 1.0, IF 2=NO, THANK RESPONDENT AND END THE INTERVIEW]

PART I: BACKGROUND INFORMATION

1.1   START TIME   ☐☐☐☐

1.2   DATE OF ASSESSMENT   (DD/MM/YYYY)   ☐☐☐☐☐☐☐☐

1.3   FIELD INTERVIEWER'S (FI) CODE   ☐☐☐

1.4   FULL NAME OF PUPIL   _____

1.4.1   PUPIL'S ID **[TO BE ASSIGNED AT DATA ENTRY]**   ☐☐☐☐☐☐☐☐

1.5   FULL NAME OF SCHOOL   _____

1.6   CURRENT KENYA NATIONAL EXAMINATION INDEX FOR THE SCHOOL   ☐☐☐☐☐

1.7   PREVIOUS KENYA NATIONAL EXAMINATION INDEX FOR THE SCHOOL ☐☐☐☐☐

1.8   FI: IN WHICH TOWN IS THE SCHOOL LOCATED?   **(USE TOWN CODES A BELOW)**   ☐☐
        CODE A: 01=MOMBASA; 02=NAIROBI; 03=NYERI; 04=NAKURU; 05=ELDORET; 06=KISUMU

1.9   START TIME FOR PART II   ☐☐☐☐

1.10   END TIME FOR PART II   ☐☐☐☐

PART II: TEST

TEST INSTRUCTIONS

1. The test consists of **40** questions.

2. Answer **ALL** the questions in the test.

3. There is only one correct answer for each question.

4. The questions are in multiple choice format. This means you have to select the correct answer from possible answers that are given to you.

5. Circle the letter next to the correct answer:

Example 1: What is the value of the 2 in this number? 4725

Circle the letter that shows the correct answer.

A.   2

B.   20

C.   200

D.   2000

The letter B is circled because the 2 in this number has a value of 20.

Example 2: What is the next number in this pattern?

3;   6;   9;   _____

Circle the letter that shows the correct answer.
A.   10

B.   7

C.   15

D.   12

The letter D is circled because the next number in the pattern is 12. This is because this pattern is made by adding 3 every time onto the number that comes before.

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1. Some of the numbers in the blocks below have been filled in. The other blocks are numbered following those which are given.
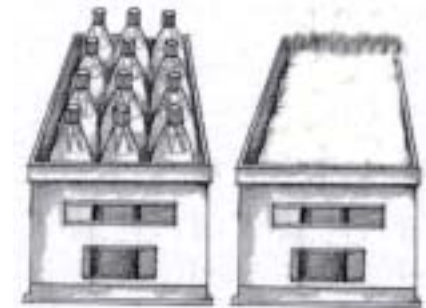
1	2	3	4	5	6	7	8	9	10
21	22	23	24	25	26	27	28		
								■	

What is the number that fills the black block?

A. 17

B. 27

C. 36

D. 39

---

2. Kamau must pack some crates. 12 bottles will fill a crate.

Kamau packs 5 crates.

How many bottles has he packed altogether?

A. 7

B. 17

C. 24

D. 60

---

3. Write the following words in numbers:

Seven thousand and thirty-one

A. 731

B. 7031

C. 70031

D. 700031

___

4. 72447 + 325 = _____

A. 72772

B. 72762

C. 727712

D. 72781

___

5. Mr Ali bought nine packets of sugar. If each packet weighed $\frac{1}{2}$ kg, how many kilograms of sugar did Ali buy altogether?

A. 9 kg

B. 4 kg

C. $4\frac{1}{2}$ kg

D. $9\frac{1}{2}$ kg

___

6. A soccer team is selling raffle tickets. The table below shows how many tickets each team member has sold.

Team Member	Tickets Sold
John	5
Mungai	15
Otieno	2
Donald	6
Mutua	8
Joseph	19
Peter	6
Graham	8

Who has sold the least tickets?

A. John

B. Joseph

C. Mungai

D. Otieno

---

7. What is the value of the 7 in this number?

47825

A. 70

B. 700

C. 7

D. 7000

---

8. 30 x _____ = 60 x 2

A. 2

B. 60

C. 4

D. 120

---

9. There are 120 children at a school assembly.

They sit in **6** equal rows.

How many children are there in **three** rows?

    A.   20

    B.   30

    C.   60

    D.   120

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10. Mrs Juma asked each learner in her class to name one favourite sport. She showed the information in the bar graph below.
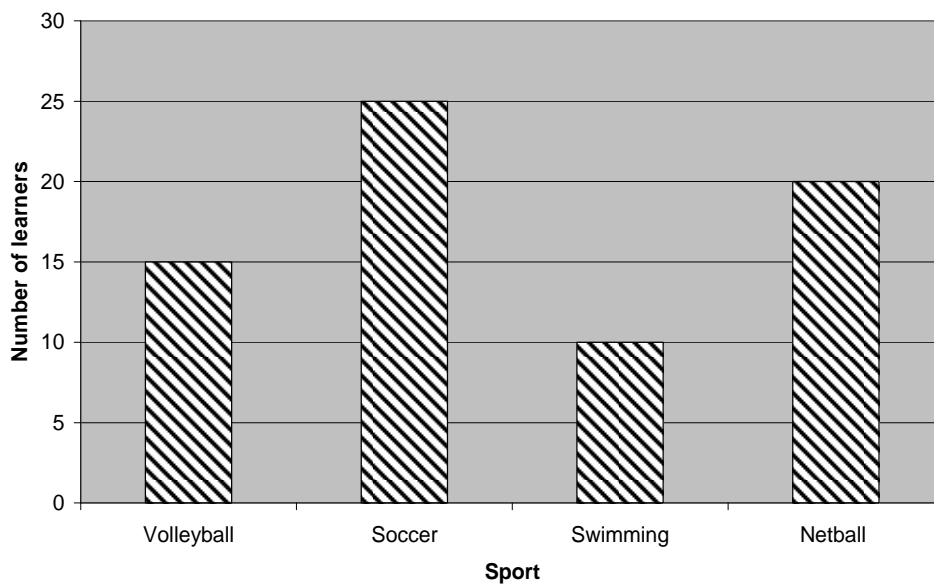
How many learners were in Mrs Juma's class?

    A.   15

    B.   70

    C.   60

    D.   25

Use the fraction chart below to help you to answer question 11.

½				½			
⅓		⅓			⅓		
¼		¼		¼		¼	
⅕		⅕	⅕		⅕		⅕
⅙		⅙	⅙	⅙		⅙	⅙
⅛	⅛	⅛	⅛	⅛	⅛	⅛	⅛
¹/₁₀	¹/₁₀	¹/₁₀	¹/₁₀	¹/₁₀	¹/₁₀	¹/₁₀	¹/₁₀ ¹/₁₀ ¹/₁₀
¹/₁₂	¹/₁₂	¹/₁₂	¹/₁₂	¹/₁₂	¹/₁₂	¹/₁₂	¹/₁₂ ¹/₁₂ ¹/₁₂ ¹/₁₂ ¹/₁₂

11. Which fraction below is greater than $\dfrac{1}{2}$?

A. $\dfrac{1}{3}$

B. $\dfrac{2}{5}$

C. $\dfrac{3}{4}$

D. $\dfrac{3}{8}$

12. What fraction of this cake is equivalent to two pieces of the cake?

A. $\dfrac{1}{4}$

B. $\dfrac{1}{8}$

C. $\dfrac{1}{2}$

D. $\dfrac{2}{6}$

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13. Write the missing number in the box:

$$487263 = 400000 + \boxed{} + 7000 + 200 + 60 + 3$$

A.   8

B.   80000

C.   800

D.   8000

---

14. How would you round off to the nearest hundreds 449 and 851 in order to estimate their sum?

A. $450 + 850$

B. $500 + 900$

C. $400 + 900$

E. $500 + 800$

---

15. 16 x 500 = _____

      A.   800

      B.   80

      C.   80000

      D.   8000

---

16. $2\dfrac{2}{3} + \dfrac{1}{6} + \dfrac{5}{9} =$ _____

      A. $2\dfrac{8}{18}$

      B. $2\dfrac{7}{18}$

      C. $3\dfrac{7}{18}$

      D. $\dfrac{7}{18}$

---

17. 7550 ÷ 25 = _____

      A.   32

      B.   302

      C.   7225

      D.   7575

---

18. Jelimo's grandmother is 66 years old.

Jelimo's age is $\frac{1}{6}$ of her grandmother's age. How old is Jelimo?

    A.   10

    B.   11

    C.   12

    D.   15

---

19. What is the value of the expression below?

$$7 + (6 \times 5) - 3$$

    A.   19

    B.   26

    C.   34

    D.   62

---

20. Look at this pattern of numbers:

$1 \times 1 = 1$

$11 \times 11 = 121$

$111 \times 111 = 12321$

What is 111111×111111?

    A.   12345654

    B.   123454321

    C.   12345654321

    D.   1234567654321

---

21. Below is a pattern of squares.
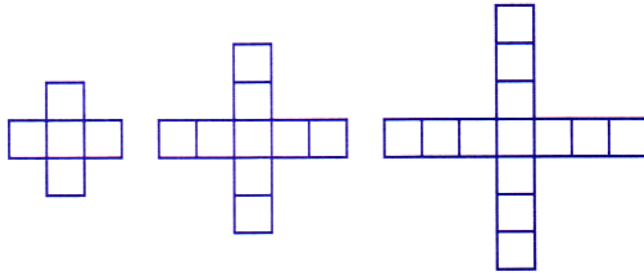
Step1   **Step 2**   **Step 3**   **Step 4**

How many squares will there be in Step 4 of this pattern?

A.   18

B.   16

C.   17

D.   20

---

22. Fill in the last number in this pattern:

$1\frac{1}{4}$; $1\frac{1}{2}$; $1\frac{3}{4}$; _____ ; _____

A.   2

B. $2\frac{1}{2}$

C. $2\frac{1}{4}$

D. $2\frac{3}{4}$

12

23. Fill in the missing number:
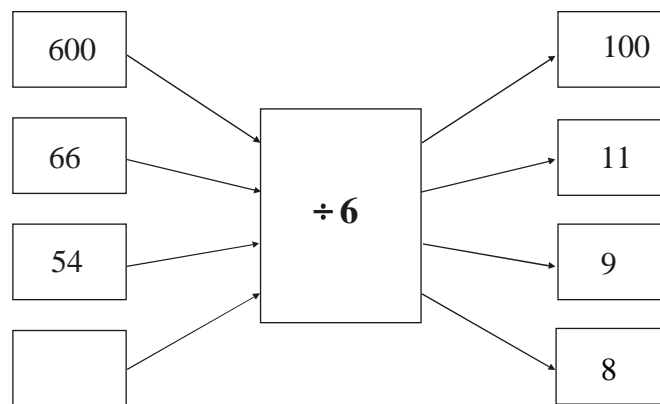
A.		12
B.		18
C.		42
D.		48

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24. Below is a pattern made from sticks
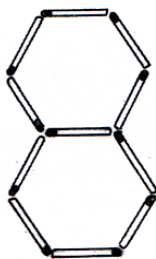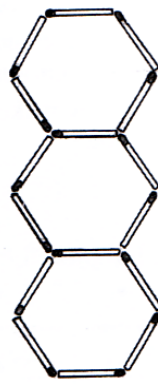
Step 1	**Step 2**	**Step 3**	**Step 4**

How many sticks will there be altogether in step 4 of this pattern?

A.	5
B.	20
C.	21
D.	25

13

25. How many edges does the following shape have?

A. 3

B. 12

C. 9

D. 6

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26. How many circles do you see in the figure below?
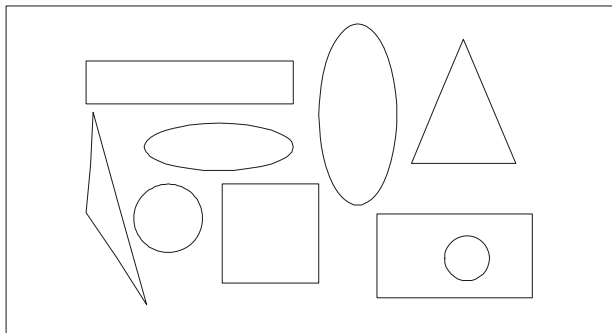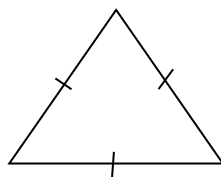

A. 4

B. 3

C. 2

D. 1

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27. Which of the following is an acute angle?
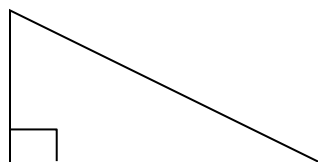

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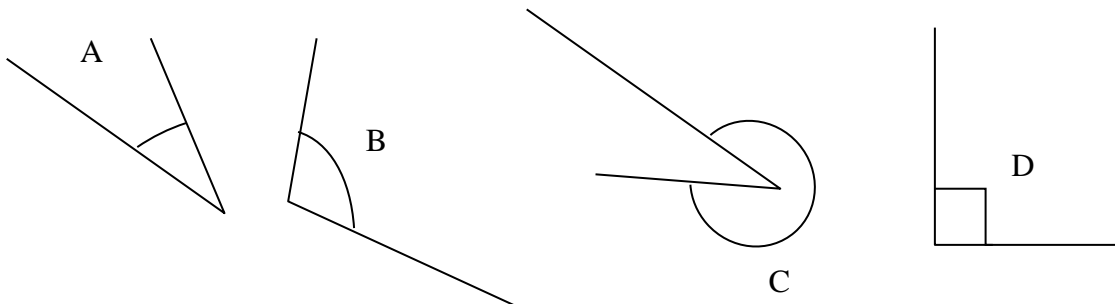
28. Which of the following shapes is an isosceles triangle?
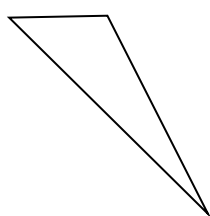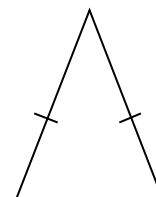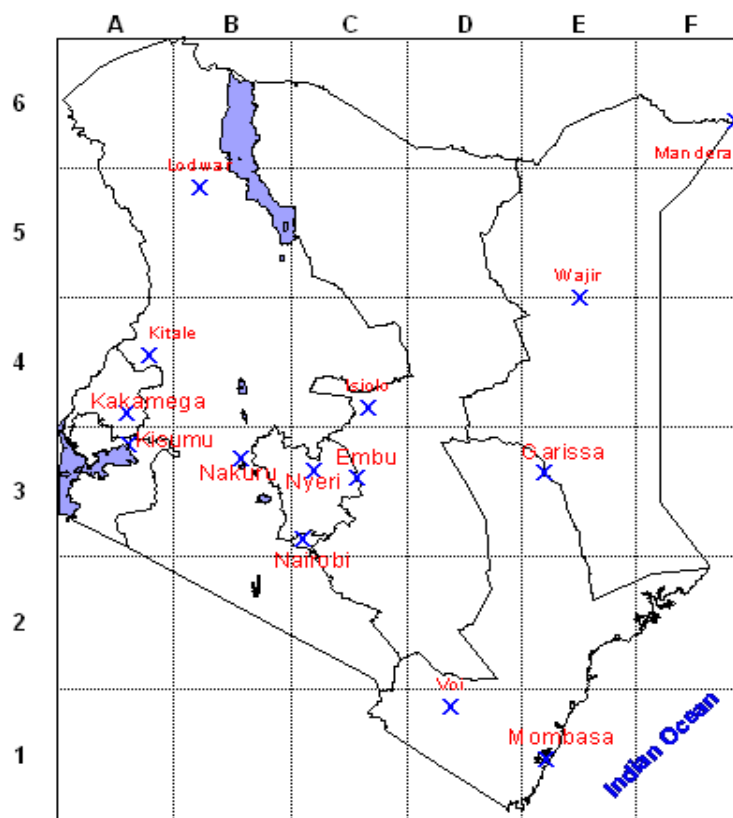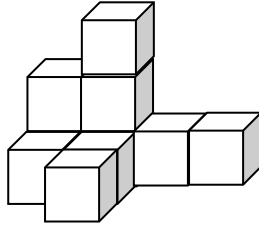

A

B

C

D

29. On the map grid below, Mombasa is in cell E1 and Kitale is in   cell A4. What town is in cell E3?
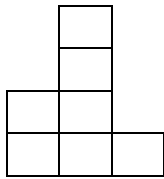

A.   Nyeri
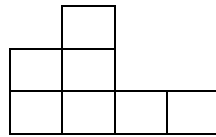
B.   Nakuru

C.   Garissa

D.   Wajir

30. The sketch below represents some cubes that have been stacked together.

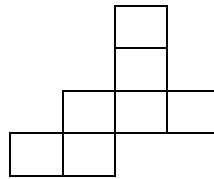

Which of the following sketches shows the **left side view** of the stack?

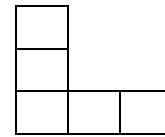A   B   C   D

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31. The amount of liquid in each container is written on its label. Read the labels to find out how much each container holds.

A   B   C   D   E

Order these items from the one that holds the **most** to the one that holds the **least**.

  A.   A E C B D

  B.   E A D C B

  C.   A E D B C

  D.   D B C E A

---

32. Simplify the following expression:

6 (2k + 4) + 4 (3k+ m)

    A.   24k + 24 + 4m

    B.   48k + 4m

    C.   24k + 28m

    D.   24k + 4m + 4

---

33. Round off 68.487 to 2 decimal places.

    A.   68.48

    B.   68.47

    C.   68.49

    D.   68.40

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34. What is the most suitable unit for measuring the length of a school compound?

    A.   mm

    B.   cm

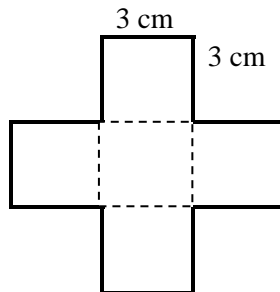   **C**.   m

    D.   km

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35. Kandie watches TV for 220 minutes on Saturday. How many hours and minutes are these?

    A.   3 hours 40 minutes

    B.   3 hours 20 minutes

    C.   2 hours 20 minutes

    D.   2 hours 40 minutes

---

36. 6.5 kg = _____ g

    A.   0.65 g

    B.   65 g

    C.   650 g

    D.   6500 g

---

37. Below is the net of an open cube.

3 cm

3 cm

What is the area of the net in square centimeters?

    A.   9 cm^2

    B.   15 cm^2

    C.   36 cm^2

    D.   45 cm^2

---

38. Mr Abdi marked some class tests for his Standard 6's. These are the results he recorded.

$$16, 24, 25, 25, 30, 36$$

What is the mean score of the learners who wrote this test?

    A.   36

    B.   25

    C.   26

    D.   156

---

39. Atieno slept at 11p.m. and woke up after 4 hours. What time did Atieno wake up in the 24-hour system?

    A.   2300 hours

    B.   0300 hours

    C.   0200 hours

    D.   1500 hours

---

40. What is the approximate mass of your mathematics teacher?

    A.   600 g

    B.   60 kg

    C.   0.6 tons

    D.   60 g